Visualizing student's difficulties in learning Calculus

ABSTRACT

Visualization is well recognized as a powerful problem representation process for solving mathematical problems. Van Garderen and Montague (2003) emphasizes that good problem solvers generally construct a representation of the problem to facilitate understanding. The purpose of this study was to investigate students' performance in solving Calculus problems and further analysed students' difficulties in solving the problems. It is clear from the protocol analyses that some students require special treatment such as further tutorial session in correcting their misconception. Also students need to monitor their steps in problem solving or deriving problem solution. Much attention should be directed to fostering students' ability to plan for problem solution. If this is not done, the students are likely to become progressively more confused and in the long run they may not survive in their mathematics problem solving experiences.

Keyword: Mathematics problem solving; Visualization; Learning difficulties; Mathematical thinking; Learning calculus